

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (Currently Amended) A method for breeding cows for desired milking characteristics comprising the steps of:
  - a-) identifying the allele of the bovine beta2-adrenergic receptor (ADRB2) gene in at least one potential parent bull animals by isolating DNA from the bull and screening the DNA to identify a variant allele of ADRB2 with an adenine (A) nucleotide at position 11 inclusive of the start codon ATG (an A11C allele); and
  - b-) breeding the bull identified as having the A11C allele male and with a female cow animals to create a daughter cow having at least one allele of beta2-adrenergic receptor the ADRB2 gene associated with improved milking characteristics.
2. (Currently Amended) The method of claim 1 wherein the ~~method for identifying the allele includes isolating DNA from the parent and screening with a method is~~ selected from the group consisting of direct sequencing, primer extension, restriction length fragment polymorphism, and allele-specific hybridization.
3. (Currently Amended) The method of claim 1 ~~whereby the screening method is intending to identify A11C alleles~~ wherein the allele is identified by combining the DNA with a restriction enzyme specific for CCCGGG for a sufficient time to produce a mixture of DNA fragments, applying the DNA fragment mixture to a gel and permitting migration of the mixture components for a time sufficient for them to separate and observing the sizes of DNA on the gel, with the largest fragments being correlated with the A genotype and with better somatic cell score (SCS) phenotype, which corresponds to faster milking speed, and the smaller fragments being associated with the C genotype and less desirable SCS phenotype.

4. (Currently Amended) A method of identifying a bull whose daughter cows will have a faster milking time, the method comprising the steps of
- a-) obtaining a sample of DNA from a bull;
  - b-) combining the DNA with a pair of PCR probes comprising ~~the~~ SEQ ~~IDs~~ ID NOs: 1 and 2 or SEQ ~~IDs~~ ID NOs: 3 and 4, wherein the probes flank the 11th nucleotide position of a bovine beta2-adrenoreceptor gene coding sequence inclusive of the start codon ATG, the probes enable detection of a single nucleotide polymorphism at said 11th nucleotide position;
  - c-) incubating the DNA under conditions permitting the DNA bounded by the PCR probes to produce DNA amplicons;
  - d-) isolating the DNA amplicons;
  - e-) combining the DNA amplicons with a restriction enzyme specific ~~for~~ to CCCGGG for a sufficient time to produce a mixture of DNA fragments from the amplicons comprising CCCGGG;
  - f-) applying the DNA fragment mixture to a gel and permitting migration of the mixture components for a time sufficient for them to separate; and
  - g-) observing the sizes of DNA on the gel, with the largest fragments being correlated with the A genotype and with better somatic cell score (SCS) phenotype, and the smaller fragments being associated with the C genotype and less desirable SCS phenotype, wherein the bull whose daughter cows will have a faster milking time which corresponds to a faster milking speed.
5. (Currently Amended) A milking attribute PCR-RFLP kit, which comprises:
- a pair of primers, which flank the 11th nucleotide position of the bovine beta2-adrenoreceptor gene coding sequence inclusive of the start codon ATG, the primers enable detection of a single nucleotide polymorphism at said 11th nucleotide position; and
  - a restriction enzyme specific for the CCCGGG site.
6. (Original) The kit of claim 5 wherein the restriction enzyme is SmaI.

Application No.: 10/572,989 Filed: 01/25/2007  
Applicants: Robert J. Collier et al.  
Examiner: Joanne Hama  
Office Action Dated: October 7, 2008  
Response Dated: October 28, 2008

7. (Currently Amended) The kit of claim 5 wherein the primer pairs are selected from ~~pair 1~~ (SEQ ID NOs: 1 and 2) or ~~from pair 2~~ (SEQ ID NOs: 3 and 4).